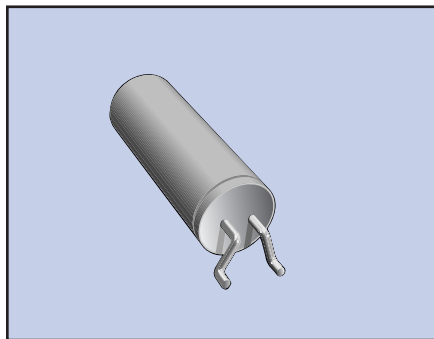




The ECS-2X6-FLX and ECS-1X5-FLX are pre-formed lead configured crystals for use in surface mount requirements. Both packages offer a cost effective solution over other SMD versions.

FEATURES

- Long term stability
- Cost effective
- SMD version
- Pb Free RoHS Compliant



PART NUMBERING GUIDE "EXAMPLE"

	FREQUENCY	LOAD CAPACITANCE	PACKAGE TYPE*
ECS	— .327	— 12.5	— 13 FLX
ECS	— .327	— 12.5	— 14 FLX

* Package Type examples (-13FLX= 2x6-FLX, -14FLX= 1x5-FLX)

OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECX-2X6-FLX			ECX-1X5-FLX			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
NORMAL FREQUENCY	F ₀		32.768			32.768		KHz
FREQUENCY TOLERANCE				±20			±20	PPM
TURNOVER TEMPERATURE		+20	+25	+30	+20	+25	+30	°C
OPERATING TEMP RANGE	T _{opr}	-40		+85	-40		+85	°C
STORAGE TEMP RANGE	T _{stg}	-55		+125	-55		+125	°C
EQUIVALENT SERIES RESISTANCE	ESR			50			55	KΩ
INSULATION RESISTANCE	100 V DC ± 15 V	500M			500M			Ω
DRIVE LEVEL	DL			1.0			1.0	μW
AGING (FIRST YEAR)	25°C ± 3°C			±5			±3	PPM
VIBRATION RESISTANCE				±5			±10	PPM
SHOCK RESISTANCE				±5			±10	PPM
CAPACITANCE RATIO	C ₀ /C ₁		450			420		
SHUNT CAPACITANCE	C ₀		1.35			0.8		pF
TEMPERATURE COEFFICIENT				-0.04			-0.04	ppm/°C ²
Q FACTOR		50K	70K			80K		
LOAD CAPACITANCE	CL		12.5			12.5		pF
MOTIONAL CAPACITANCE	C ₁		0.003			0.0019		pF

PACKAGE DIMENSIONS (mm)

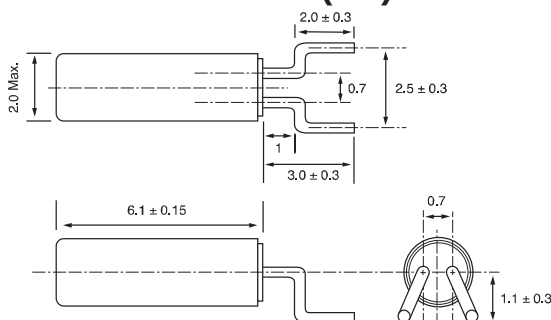


Figure 1) ECS-2X6-FLX - Top, Side and End views

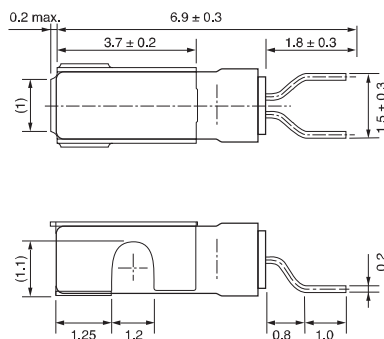


Figure 1) ECS-1X5-FLX - Top, Side and End views

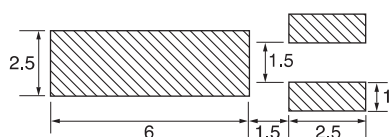


Figure 2) ECS-2X6-FLX Land Pattern - Top view

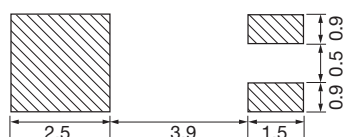
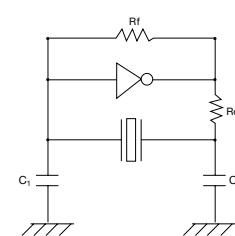


Figure 4) ECS-1X5-FLX Land Pattern - Top view

RECOMMENDED OSCILLATION CIRCUIT



ELECTRICAL CHARACTERISTICS

IC: TC 4069P

R_f: 10MΩ

R_d: 330KΩ (As required)

C₁ = 22pF, C₂ = 22pF

V_{DD} = 3.0V

In this circuit, low drive level with a maximum of 1μW is recommended. If excessive drive is applied, irregular oscillation or quartz element fractures may occur.